Allergy Abstracts

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Asthma and Hay Fever

Intravenous Use of Fluids in Bronchial Asthma. Sheldon, J. M.: J. A. M. A. **139**: 506, 1949.

The intravenous administration of sodium, potassium, or calcium solutions afford little or no relief in status asthmaticus. Hypertonic sucrose may have a favorable effect upon the asthmatic attack but is contraindicated because it may produce renal damage. Intravenous dextrose appears to be the most effective electrolyte in the treatment of status asthmaticus. It has been employed in concentrations of from 10 to 50 per cent, but the author prefers a 5 per cent solution in distilled water. This is isotonic and will correct alterations of dehydration as well as furnish a readily available source of energy. To avoid "speed shock" and overloading of the myocardium it should be given slowly (not more than 3,000 c.c. at a rate of 500 c.c. per hour). The use of sodium chloride intravenously should be avoided. F.

Death During Skin Testing. Blanton, W. B., and Sutphin, A. K.: Am. J. M. Sc. **217**: 169, 1949.

A 57-year-old woman with asthma of long duration had been skin tested on two previous occasions, the last time in June, 1945. At this time, strong reactions to cat, chicken, and duck epithelium, house dust, and Bermuda grass had been obtained. Her asthma had responded to Pyribenzamine and intravenous Aminophylline, but the patient stated that the administration of adrenalin always caused immediate and alarming symptoms. Preliminary scratch tests by the authors with several groups of inhalants, cottonseed, flaxseed, condiments, fish, mollusks, and egg were all negative. A series of

intracutaneous tests including cat, dog, cow, duck, and chicken epithelium, plus a number of foods were then injected on the back. After fifty-six intracutaneous tests had been introduced, the patient suddenly complained of air hunger, became moderately cyanosed, and severely dyspneic. Wheezing respiration was audible over the entire chest. She was given 0.5 c.c. of epinephrine intramuscularly without effect, followed by ⅙ grain of morphine subcutaneously. Death occurred fifteen minutes after the onset of symptoms. The skin tests were not read during this period but all were presumed to have been negative. Autopsy performed two hours after death showed both chest cavities to be filled by strikingly voluminous lungs which remained inflated and floated after removal from the thorax. Subpleural hemorrhages were observed in the right lower lobe and submucous hemorrhages in the trachea and primary and secondary bronchi. The heart was normal and contracted. Microscopic examination of the lung showed hyaline thickening of the basement membrane, round cell and eosinophilic infiltration and edema of the walls of secondary bronchi. There was marked infolding of the bronchial mucous membranes suggestive of spasm as an occluding factor. The lumina of the bronchi were partially filled with mucus and the trachea showed some edema. The possible causes for this fatality are discussed. F.

Treatment of Asthma by Radiotherapy. Vallery-Radot, P., and Blaumoutier, P.: Presse méd. **68**: 813, 1948.

Over a period of twenty-three years, good results were obtained in 23 per cent of 680 asthmatic patients who received x-ray therapy. Of the remainder, appreciable improvement was noted in 18 per cent, temporary improvement in 23 per cent, and no improvement in 36 per cent of cases. None of the patients were sensitive. All had chronic asthma of long duration with chronic bronchitis, bronchiectasis, and other complications. Radiotherapy is recommended as an effective nonspecific form of treatment in asthma. C.

Clinical Evaluation of Isopropylepinephrine in Management of Bronchial Asthma. Gay, L. N., and Long, J. W.: J. A. M. A. **139**: 452, 1949.

The isopropyl modification of epinephrine, racemic 1-(3-4-dihydroxyphenyl) 2-isopropylamino-ethanol, appearing under the trade names of Isuprel, Aleudrin, Eludrine, and Isonorin, was evaluated for its efficacy in the treatment of bronchial asthma. Definite bronchial dilation was obtained when the drug was administered orally, subcutaneously, sublingually, or by inhalation. The most satisfactory results were achieved by inhalation, which appeared to promote the flow of sputum, and by sublingual administration. The response was more rapid and the results more lasting in mild types of asthma than in severe ones. Early administration yielded the best results. Side effects encountered included palpitation, nausea, headache, nervousness, tremor, dizziness, and precordial pain. Only 4 per cent of the patients taking the drug by inhalation experienced unfavorable side effects, but from 33 to 100 per cent of patients using other routes of administration experienced such effects. For subcutaneous injection, a 1:5,000 dilution was found to be preferable to the 1:1,000 dilution because of the severity of the side effects produced by the stronger solution. Several patients experienced typical attacks of coronary insufficiency with demonstrable electrocardiographic changes after either oral or subcutaneous administration of the drug. Patients who had become "adrenalin-fast" often responded to isopropylepinephrine administered by inhalation or by the subcutaneous route. F.

Dermatology

Streptomycin in Topical Therapy. I. Its Sensitizing Property. Goldman, L., and Feldman, M. D.: J. A. M. A. **138**: 640, 1948.

In a series of almost 300 cases treated topically with streptomycin only three instances of eczematous contact hypersensitivity were observed. Each of these cases showed strong positive patch tests to streptomycin. In addition a severe generalized dermatitis occurred in a nurse who had handled streptomycin. Among 261 patients subjected to patch tests applied to the skin and to buccal and vaginal mucosae, not a single positive reaction was encountered. Attempts at facial sensitization by application of streptomycin ointment failed in seventeen patients. F.

Research on Some Fundamental Aspects of Contact Eczema. Beek, C. H.: Acta dermat.-venereol. **28**: 523, 1948.

Two hundred women engaged in housekeeping, with the same contact milieu, were patch tested with housecleaning materials. These subjects could be divided into three groups: Those with contact dermatitis, those with various other dermatoses, and those without any skin lesions. The contact dermatitis group did not show a greater incidence of positive patch tests than the other groups when tested with substances to which all were exposed. Patients with contact dermatitis were not more easily sensitized than patients in the other groups.

The most common reactors in order of sequence were turpentine, paraphenylendiamine, colophonium, chromium, nickel, formalin, and primulin. Drugs used in treatment were frequent etiologic factors of dermatitis. Patch testing of 500 patients with various skin lesions revealed the greatest degree of skin hypersensitivity in patients with ulcus variosum. The question is raised as to whether skin defects facilitate the development of hypersensitiveness. H.

Sensitivity to Intracaine. Rein, C. R., and Kanof, N. B.: J. Invest. Dermat. **11**: 311, 1948.

A 34-year-old man who had been using a 5 per cent Intracaine ointment for anal pain and itching for about ten months developed perianal pruritus and erythema followed by a generalized erythematous, maculopapular pruritic dermatitis. When the ointment was discontinued the dermatitis cleared promptly. Patch tests were positive to Intracaine and negative to Procaine. B. SIEGEL.

Otorhinology and Ophthalmology

Hydrogen Ion Concentration of Nasal Secretion in Situ in Infants and Children, With a Comment on pH Values in Pediatric Nasal Medication. Fabricant, N. D., and Perlstein, M. A.: Arch. Otolaryng. **47**: 765, 1948.

The pH of nasal secretions in situ in clinically normal nasal passages of a group of forty-four infants and children was found to range from 5 to 6.7. In a group of seventeen infants and children with nasal symptoms, nasal pH ranged from 7 to 8 in acute rhinitis, from 6.7 to 7.2 in subacute and subsiding rhinitis, and from 7.2 to 7.3 in active allergic rhinitis. In subsiding allergic rhinitis the nasal pH was 6.7. These findings closely paralleled those in adults under similar normal and pathologic conditions.

Normal nasal secretion possesses a purposeful acid barrier against infection, since acidity is unfavorable to the growth of pathogenic bacteria. Slightly acid sulfonamide and penicillin nasal medication approaching in pH

the physiologic range of nasal secretion in man has the least irritating effect. It is suggested that pediatric nasal medication should possess a pH value falling within the range of 5 to 6.7. C.

Effect of Locally Applied Antihistamine Drugs on Normal Eyes. Grant, W. M., and Loeb, D. R.: Arch. Ophth. **39**: 553, 1948.

The maximum concentrations of various antihistaminics at which applications of a single drop failed to produce alterations in the rabbit cornea were determined by examination with the slit lamp to be as follows: Antistine, 1.5 per cent; Benadryl, 1 per cent; Decapryn, 5 per cent; Histadyl, 5 per cent; Neoantergan, 5 per cent; Pyribenzamine, 2.5 per cent; Thenylene, 5 per cent; and Thephorin, 1 per cent. At slightly higher concentrations these drugs produced temporary keratitis epithelialis. At still higher concentrations corneal edema developed, followed at times by a loss of epithelium. The maximum doses suitable for clinical use in the human eye were: Antistine, 0.75 per cent; Benadryl, 0.5 per cent; Decapryn, 1 per cent; Thenylene, 0.4 per cent; Histadyl, 0.35 per cent; Neoantergan, 0.5 per cent; Pyribenzamine, 0.5 per cent; and Thephorin, 0.5 per cent. These concentrations produced a slight transient conjunctival hyperemia. Only Benadryl had a mydriatic of cycloplegic effect and none of the drugs produced pronounced anesthesia following a single application. C.

The Bacterial Flora of the Nasopharynx in Relation to the Common Cold. Kolmer, J. A., Bondi, A., Jr., and Schellinger, G.: Arch. Otolaryng. **47**: 571, 1948.

Organisms found in cultures made with 332 swab specimens taken from the nasopharynx in 209 normal adults and with 800 specimens obtained from 146 adults suffering from the common cold were identified. The microorganisms found were *Streptococcus alpha, Str. beta* (Group A), *Str. beta* (other types), *Str. gamma, Staphylococcus albus, Staph. aureus, Hemophilus influenzae,* neisseriae, pneumococci, and diphtheroid bacilli. All microorganisms isolated from adults suffering with the common cold were also found to be present in normal adults. Beta hemolytic streptococci of Group A, staphylococci, and pneumococci occurred more frequently in the infected patients than in normal controls. These microorganisms are secondary invaders and occur most frequently in the late stages of the common cold. Pneumococcic pneumonia (Types I and II) commonly follows antecedent infections of the upper respiratory tract, including the common cold. However, these two types of organisms were absent in this investigation. It is likely that the common cold reduces the local resistance of the lower respiratory tract and thus predisposes to infection with pneumococci introduced by contact with carriers. Vaccines employed for active immunization should consist of beta hemolytic and gamma streptococci, *Staph. aureus,* and *H. influenzae* with special emphasis on beta hemolytic streptococci of Group A. C.

Sensitivity to Application of Sodium Sulfacetamide. MacMillan, K. D.: Arch. Ophth. **39**: 554, 1948.

Typical allergic dermatitis involving the upper and lower eyelids followed the daily instillation of a 10 per cent sodium sulfacetamide ointment for a week. Cessation of treatment resulted in the disappearance of the lesions. The patient had shown sensitivity to sulfonamide drugs on previous occasions. C.

Miscellaneous Allergies

Experimental Serum Disease. A Pathogenic Study. Ehrich, W. E., Seifter J., and Forman, C.: J. Exper. Med. **89**: 23, 1949.

Horse serum or duck serum was administered intravenously to young rabbits and the resulting tissue changes were studied from three to thirty-four days later. Old rabbits showed weaker serologic and histologic reactions than young rabbits. The most pronounced lesions were observed in the vascular connective tissue along the path of the injected antigen. The right heart, lungs, spleen, and kidneys were also markedly affected. These findings contrasted with those obtained with bacillary antigens, which particularly affect lung, spleen, and liver and do not give rise to allergic arteritis. The difference in reaction may be due to the size of the antigenic particles, bacillary antigen being taken up by granulocytes and macrophages which accumulate in lungs, spleen, and liver.

Myocardial lesions developed as early as the third day after the injection of horse serum. Fully developed lesions closely resembled Aschoff's bodies. The allergic arteritis produced resembled human periarteritis nodosa. Two varieties of glomerular nephritis were observed, one resembling intracapillary and the other extracapillary glomerular nephritis in man.

The early reactions consisted of immediate proliferation of mesenchymal cells, including plasma cells, especially in the heart, lungs, and spleen. They occurred before antibody formation was demonstrable and before typical serum disease developed. As for the later reactions, "subacute allergic arteritis occurs only after serum disease has passed and skin sensitivity has appeared, which indicates that considerable quantities of antibody have been laid down in the vascular connective tissue." Necrotizing myocardial lesions, valvular lesions, severe proliferative glomerular nephritis, extracapillary glomerular nephritis, and necrotizing arteritis were observed after the animals had become sensitive or following a second injection of serum in sensitive animals. They were considered as probable Arthus phenomena. K.

Skin Tests With Endocrine Substances. Method of Zondek and Bromberg. Baer, R. L., Witten, V. H., and Allen, J. R.: Ann. Allergy **6**: 239, 1948.

Thirty-eight female patients with dermatoses which occurred with or were aggravated by menstruation or menopause were skin tested with steroid hormones according to the method of Zondek and Bromberg. The dermatoses included acne, urticaria, pruritus vulvae, eczema, pruritus ani, generalized pruritus, acne rosacea, keratoderma climactericum, keratous follicularis, recurrent aphthous ulcers, and seborrheic dermatitis. Four of these patients were hypersensitive to the olive oil vehicle and were excluded from the study. Of those tested, four gave positive reactions, of which three were present at the usual tested, four gave positive reactions, of which three were present at the usual reading time and one was a retarded reaction occurring prior to the succeeding menses. Eleven patients gave questionable responses. Two positive reactors with urticaria obtained marked relief of symptoms when they were hyposensitized by subcutaneous injections of ascending doses of the specific hormone which produced the positive skin reaction. A control group of sixty-four patients with dermatoses which were not related to genital functions showed no positive reactions and thirteen, questionable reactions. All of these tests were made at a deeper level than that usually used for intracutaneous testing. It is suggested that these reactions are intermediate in type between the immediate and tuberculin responses. E. W.

Pseudocellulitis, a Reaction to Penicillin in Peanut Oil and Beeswax. Lesnick, G., Siegal, S., and Ginzburg, L.: Surgery **24**: 989, 1948.

In a series of fifty patients who received injections of penicillin in oil and beeswax, four developed severe delayed reactions from seven to ten days after the first injection. The reaction started as a tense, painful swelling of the buttock, with general malaise and fever, followed by a localized circular erysipeloid skin eruption. The local reaction reached its peak in forty-eight hours and then receded in seven to ten days, leaving a small tender subcutaneous nodule which persisted for another fifteen to forty-five days. Two of the four cases also developed rhinitis, urticaria, and joint pains. Skin tests with penicillin, peanut oil, and beeswax were negative.

The absence of similar reactions following injections of penicillin in saline in more than 1,000 patients points to the importance of the menstruum as a causative factor in untoward reactions. Since peanut oil and beeswax are known to be of low antigenicity, it seems likely that penicillin is the offending agent and that the oil and wax increase its antigenicity. J. S.

Nonsensitization to Repeated Tuberculin Testing. Schwartzman, J., Schneider, M., and Crusius, M. E.: J. Pediat. **33**: 746, 1948.

The authors studied the possibility of inducing tuberculin hypersensitivity in nontuberculous individuals by repeated skin testing. Ten infants, ranging in age from 2 to 9 months, and one 3-year-old child were tested intracutaneously with old tuberculin. Starting with a 1:10,000 dilution, the concentration was rapidly increased to 1:100 and the test was repeated at forty-eight hour intervals. The number of tests varied from eleven to sixty and the interval between the first and last test varied from one to six months. Positive reactions were not obtained.

Tuberculin patch tests (Vollmer) were performed on the backs of eleven infants, ranging in age from 2 to 10 months, and also on one 3-year-old child. From eight to twenty-nine patch tests were done on each subject over a period of from one to six months. Sensitivity could not be induced in this manner. J. S.

Studies on Periarteritis Nodosa. III. The Differentiation Between the Vascular Lesions of Periarteritis Nodosa and of Hypersensitivity. Zeek, P. M., Smith, C. C., and Weeter, J. C.: Am. J. Path. **24**: 889, 1948.

Periarteritis nodosa was produced experimentally in rats. The lesions were similar to those found in fifteen of thirty-one cases of necrotizing arteritis in man which came to autopsy. Seven of the remaining sixteen cases associated with clinical hypersensitivity showed somewhat different lesions at autopsy and were described as hypersensitivity angiitis. Periarteritis nodosa may be differentiated from hypersensitivity angiitis by the distribution of the lesions, the size and type of vessels involved, and the morphologic characteristics of the early lesions. J. S.

Electroencephalographic Abnormalities in Patients With Generalized Neurodermatitis. Sternberg, T. H., and Baldridge, G. D.: J. Invest. Dermat. **11**: 401, 1948.

Electroencephalographic studies were done on twelve atopic patients with active generalized neurodermatitis. Other conditions which might influence the EEG were absent in these cases. Three patients showed normal tracings,

while nine showed minimal to moderate cortical abnormalities characterized by a random dysrhythmia with both fast and slow waves. Similar abnormalities were noted when four patients were retested one month later. Among unselected groups the incidence of abnormal EEG is 10 per cent. The higher percentage obtained in this small group suggests that there may be a correlation between neurodermatitis and abnormal brain waves. The similarity in EEG records of psychoneurotic individuals and of patients with neurodermatitis may be indicative of a common factor in these conditions. Cortical anoxia may be a responsible factor in the abnormal tracings in neurodermatitic patients. B. SIEGEL.

Studies on Scratch Tests in Atopic Dermatitis and Comparison With the Intracutaneous Method. The Lack of Reproducibility of Results With the Scratch Test. Narins, R. S.: J. Invest. Dermat. **12**: 49, 1949.

Skin tests with common foods and inhalants were performed by a single investigator using a standardized technique on a series of patients with atopic dermatitis. Scratch tests done simultaneously on symmetrical sites on the same individual with a single allergen and repeated at weekly intervals in the same skin regions showed variation in results ranging from negative to positive from site to site and from week to week. The variations occurred with both the powdered and glycerinated protein extracts. Intracutaneous tests done simultaneously on symmetrical sites with the same allergen showed approximately equal reactions, whereas scratch tests on the same individuals at the same time varied widely in reaction. Similar results were obtained on comparing scratch and intracutaneous tests on patients with asthma and hay fever. I. GLAZER.

Skin Testing With Fractions of Chocolate. Zohn, B.: Ann. Allergy **5**: 344, 1947.

Although chocolate is a very common cause of allergic symptoms, the incidence of positive skin reactions to this allergen is not very great. An attempt was made to determine which fraction of chocolate yielded the greatest number of positive skin reactions. Subjects were tested with extracts of cocoa bean, shell, nib, liquor, and powder. While there was no pronounced difference in the incidence of skin reactions with these various fractions, cocoa bean and cocoa shell seemed to give more positive reactions than the others. Skin tests were also performed with finished chocolate products, such as sweet chocolate, bitter chocolate, cocoa, and others, but no definite positive reactions were obtained. No definite correlation was noted between clinical symptoms and the skin reaction to chocolate. AUTHOR'S ABSTRACT.

Cow's Milk Idiosyncrasy in Infants. Vendel, S.: Acta paediat. **35**: (Suppl. 5): 37, 1948.

A review of the admissions to four children's hospitals in Stockholm during the period from 1914 to 1926 revealed twenty-three patients hospitalized for symptoms arising from allergy to cow's milk. A study of these cases revealed that the latent period between the ingestion of the milk and the onset of symptoms varied in different cases but was constant for each individual. The allergic reaction did not always occur following the first exposure to the allergen. The patients either reacted immediately with symptoms including urticaria and asthma, or showed delayed symptoms involving the gastrointestinal tract. Fifty per cent of these patients reacted within four hours,

most of them two or three hours after ingestion of the milk. Because of the dangers inherent in cutaneous testing of infants, the writer preferred passive transfer testing in these cases. Detailed case histories of the twenty-three patients and an excellent review of the literature on allergy to cow's milk are provided. H.

Necrotizing Generalized Arteritis Due to the Use of Sulfonamide Drugs. Van Rijssel, T. G., and Myer, L.: Acta med. Scandinav. **132**: 251, 1948.

Seven patients are reported in whom a generalized necrotizing arteritis followed the administration of sulfonamide drugs. Six of these patients died. Post-mortem studies revealed widespread localized arteritis suggesting periarteritis nodosa. In some cases, all small arteries in every organ were inflamed. The reported symptoms and fatal outcome are attributed to the generalized necrotizing arteritis. The authors recommend extreme care in the administration of sulfonamide drugs which, they suggest, should be reserved for hospitalized patients.

Tropical Eosinophilia and Loeffler's Syndrome. Bouroncle, B.: An. Fac. med., Luna. **30**: 283, 1947.

The author states that tropical eosinophilia, eosinophilic leucemoid syndrome, and transient eosinophilic infiltration of the lungs (Loeffler's Syndrome) are clinical expressions of the same infection, which is of unknown etiology. Nine cases of Loeffler's syndrome are reported. In the early phase of the syndrome, anemia was present in all cases. Bone marrow biopsy showed eosinophilic hyperplasia of adult forms and normoblastic erythropoietic hyperplasia. It was assumed that the erythrocytes were being destroyed by some infectious agent. The presence of hepatic damage was demonstrated by biochemical tests. H.

Asymptomatic Eosinophilia Following Penicillin Administration. Berk, M. S., and Sostek, S. B.: Ann. Allergy **6**: 675, 1948.

Eosinophilia without any other manifestation of hypersensitivity occurred in a patient following the administration of crystalline sodium penicillin for a period of eight weeks. It disappeared when the drug was discontinued and recurred when it was renewed. Intracutaneous injection of a solution of crystalline sodium penicillin produced a tuberculin-type reaction.
I. GLAZER.

Anaphylactic Death From Penicillin. Waldbott, G. L.: J. A. M. A. **139**: 526, 1949.

A 39-year-old asthmatic woman who developed general malaise and a fever of 101.5° F. was given 50,000 units of penicillin intramuscularly. The medication was administered at home by a nurse. Within five seconds, the patient complained of a strange taste in her mouth and swelling and tightness in the nose and throat. Her face became flushed and cyanotic and generalized pruritus developed. Collapse and death followed within a very short time. The patient had received three courses of penicillin within the preceding four months without ill effects. The author is of the opinion that the medication was accidentally introduced into a vein. A review of the patient's record revealed that, following the third course of penicillin given about six weeks previously, she complained of symptoms which may have been those of a drug sickness not recognized as such at the time. No autopsy was performed. F.

Fever Due to Food Allergy. Rowe, A. H.: Ann. Allergy **6**: 252, 1948.

An 18-year-old girl with fever and colitis had been hospitalized for 122 days before allergy was suspected as the cause of her complaints. Skin testing revealed positive reactions to several foods. Although the reaction to milk was negative, this food was found to be the offender. The sedimentation rate was elevated and the blood eosinophilia ranged up to 23 per cent. Symptoms cleared when milk was removed from the diet and recurred with its ingestion. E. W.

Anaphylaxis

Antibody Formation and Sensitization With the Aid of Adjuvants. Freund, J., Thomson, K. J., Hough, H. B., Sommer, H. E., and Pisani, T. M.: J. Immunol. **60**: 383, 1948.

Various adjuvant mixtures combined with *S. typhi* were injected into rabbits. Peanut oil, in contrast to paraffin, was found to have no enhancing effect. Arlacel A, Falba, anhydrous lanolin, and myricin combined with cholesterol all appeared to be effective emulsifying agents. Tween 80, a wetting agent, yielded an oil-in-water emulsion, but all oil-in-water emulsions seemed to be ineffective. However, water-in-oil emulsions were usually satisfactory. Large amounts of Falba and cholesterol increased antibody titers, whereas large amounts of either paraffin oil or cerotic acid lowered the titers.

Three species of acid-fast bacilli, namely, *M. butyricum, M. tuberculosis,* and *M. phlei* increased antibody formation. The potentiating effect of a lipid extract from *M. tuberculosis* was striking and just as effective as that of *M. tuberculosis.* The amount of lipid extract used although very minute was derived from several hundred milligrams of bacteria. Since lipid extracts could not induce tuberculin hypersensitiveness in guinea pigs, it seemed unlikely that their activity depended on whole or fragmented acid-fast bacteria in the extract. Sensitization with a simple compound like picryl chloride combined with adjuvants was successful only when *M. tuberculosis* was also present. It is suggested that the mode of action of the agents studied may depend upon protection of antigens against destruction, or upon the induction of a cellular reaction favorable to immune response, or upon both of these factors. Other possibilities cannot be excluded. R. WISEMAN.

Failure to Produce Lesions or Auto-Antibodies in Rabbits by Injecting Tissue Extracts, Streptococci, and Adjuvants. Peck, J. L., and Thomas, L.: Proc. Soc. Exper. Biol. & Med. **69**: 451, 1948.

At weekly intervals, rabbits were given four subcutaneous injections of suspensions of homologous kidney or heart tissue in combination with heat-killed cultures of Group A and Group C beta hemolytic streptococci and Freund's adjuvants. Blood samples were obtained at varying intervals after the final inoculation. Complement fixation and collodion particle agglutination tests yielded negative results in all cases. None of the 350 rabbits developed myocardial or renal lesions suggestive of rheumatic myocarditis or glomerulonephritis. Ten animals treated with heart or kidney tissue in combination with streptococci, some with and some without adjuvants, developed acute inflammatory lesions in the myocardium of the right ventricle, which did not resemble rheumatic myocarditis. Attempts to repeat these results using the same materials and strain of streptococci were unsuccessful. B. SIEGEL.

Modification of Biologic Response in Experimental Hypersensitivity. Dammin, G. J., and Bukantz, S. C.: J. A. M. A. **139**: 358, 1949.

The effect of antihistaminic drugs, heparin, and nitrogen mustard on the production of circulating antibodies, the Arthus phenomenon, and vascular lesions was investigated in rabbits. Histamine was administered intravenously to eleven rabbits in total dosages ranging from 0.55 to 13.6 mg. over periods varying from one to sixty-two days. This procedure failed to produce the type of vascular lesions found in experimental hypersensitivities. Neohetramine and Benadryl failed to inhibit in vitro antigen-antibody union, the development of Arthus reactions, the production of antibodies, or of vascular lesions in horse serum-sensitized rabbits. Arthus reactions and antibody formation occurred with fair regularity in sensitized animals, but vascular lesions appeared irregularly and their appearance could not be predicted on the basis of the presence of the other two reactions. However, when vascular lesions did occur, they were always accompanied by the presence of circulating antibodies and cutaneous hypersensitivity. Local passive transfer was only moderately successful but offers possibilities as a useful method to study the nature of the in vivo antigen-antibody reaction and the agents which might modify this reaction. Heparin failed to influence the production of the Arthus reaction. Nitrogen mustard, however, appeared to have a pronounced inhibiting effect upon the production of vascular lesions as well as upon antibody formation and the Arthus reaction. This finding suggests some relationship between these three reactions. It is possible that some additional host factor is needed to account for the irregular presence of the arterial lesions. F.

Crymotherapy and Anaphylaxis. Frank, D. E.: Ann. Allergy **6**: 667, 1948.

Guinea pigs were sensitized intra-abdominally with horse serum. Fourteen days later the animals were refrigerated at 18° to 27° C. for 60 to 195 minutes prior to the intravenous administration of a shocking dose of horse serum. Eight of the thirteen animals in the series died in anaphylactic shock. All of the surviving animals showed signs of delayed anaphylaxis. Refrigeration seemed to delay the onset of anaphylactic symptoms but failed to inhibit them. Crymotherapy also delayed the onset of histamine shock but failed to prevent fatal shock. I. GLAZER.

The Tracheal Chain. II. The Anaphylactic Guinea Pig Trachea and Its Response to Antihistamine and Bronchodilator Drugs. Castillo, J. C.: J. Pharmacol. & Exper. Therap. **94**: 412, 1948.

A series of loops of tracheal smooth muscle were prepared from horse serum-sensitized guinea pigs. This chain contracted markedly when horse serum was added to the preparation. The contraction produced by the antigen differed from that of histamine, in that it was not relieved by Benadryl, Pyribenzamine, or Neoantergan, even on prolonged contact. Primary bronchodilators, such as Aminophylline and epinephrine, relax the antigen-induced spasm, but the contraction reappears when these drugs are removed from the muscle bath. K.

Pharmacology and Physiology

Sensitivity of the Lymphopenic Reaction to Adrenalin. Gellhorn, E., and Frank, S.: Proc. Soc. Exper. Biol. & Med. **69**: 426, 1948.

Rats were injected intraperitoneally with adrenalin in doses of 0.05 to 1 gamma per 100 grams weight. Blood counts done at twenty-minute intervals for one hour showed a leucopenia with a marked lymphopenia and an increase in the number of neutrophiles. This lymphopenic response was insignificant when the dose of adrenalin was reduced to 0.03 gamma per 100 grams weight, or after adrenalectomy. The absence of an effect in the adrenalectomized animals was not due to a general deficiency in adrenocortical hormones, since even with pretreatment with these hormones there was no lymphopenic reaction following adrenalin. Pretreatment of normal rats with adrenocortical extracts also reduced the effect of adrenalin on the lymphocyte count. It is suggested that adrenalin increases the consumption of adrenocortical hormones in the tissues and reduces the blood concentration of these hormones. This leads to increased secretion of the adrenotrophic hormone which increases the secretion of adrenocortical hormones. The latter are responsible for the lymphopenia. B. SIEGEL.

Changes in Circulating Eosinophiles in Man Following Epinephrine, Insulin, and Surgical Operations. Laragh, J. H., and Almy, T. P.: Proc. Soc. Exper. Biol. & Med. **69**: 499, 1948.

The administration of epinephrine subcutaneously or regular insulin intravenously to normal adults was followed by an average drop in blood eosinophiles of about 55 per cent in most cases. When hypoglycemic levels were not attained, as with glucose insulin tolerance tests, the typical eosinophile drop did not occur. In cases of Addison's disease and pituitary insufficiency, the typical fall in the eosinophile count after epinephrine and insulin also failed to develop. However, patients with other types of endocrinopathies responded normally. Four of six cases of hypertension showed an exaggerated response to insulin with an average drop in eosinophiles of 90 per cent. Three patients with severe ulcerative colitis showed little change in the eosinophile count, but milder cases responded normally. Fourteen of fifteen patients demonstrated a profound decrease in the number of circulating eosinophiles following major surgery. The peak occurred from three to eight hours after the beginning of the operation. The fifteenth case had severe ulcerative colitis and developed a marked and progressive eosinophilia following an ileostomy. These results suggested that the normal decrease in the number of circulating eosinophiles following epinephrine or insulin was mediated through the pituitary and adrenal cortex. The marked eosinopenia noted following surgical procedures may be further evidence of the role of the adrenal cortex in the "alarm reaction" in man. B. SIEGEL.

Spectral Absorption Studies of Antihistaminic Drugs. Friedlaender, A. S., Friedlaender, S., and Vandenbelt, J. M.: J. Invest. Dermat. **11**: 397, 1948.

The ultraviolet absorption spectra for thirteen antihistaminic drugs were studied with a spectrophotometer. The drugs which showed the greatest absorption within the sunburn range (2950 A.U. to 3150 A.U.) were found to be Pyribenzamine, Thenylene, Neoantergan, Pyrollazote, Tagathen, Neohetramine, and Antistine, in the order mentioned. It was also noted that the percentage of the sunburn spectrum transmitted was inversely proportional to the concentration of Pyribenzamine used. B. SIEGEL.

A Comparison of the Effect of Antihistamine Drugs in Human Subjects by Means of Histamine Iontophoresis. Perry, D. J., Mortimer, F. S., and Pillsbury, D. M.: J. Invest. Dermat. **11**: 461, 1948.

Normal subjects tested by iontophoresis showed a range in the threshold of cutaneous response to histamine which varied from a dilution of 1:900,000 to 1:9,000,000, but most frequently fell between 3,000,000 and 6,000,000. Antihistaminic drugs given orally raised the threshold of response. Arranged in descending order of their effectiveness the drugs were: Hydryllin, tripelennamine, diphenylamine hydrochloride, ephedrine sulfate, and Aminophylline.
R. WISEMAN.

Efectos do las Ionizaciones de Benadryl en Tejidos con Manifestaciones Alergicas. (Effect of Benadryl Ionizations on Patients With Allergic Manifestations.) Cortés, Jose Luis, and Rodríruez, H. Emma: Alergia **2**: 1, 1948.

The authors agree with the majority of research workers that Benadryl orally administered is useful in pruriginous dermatitis. However, the drug is only slightly effective in rhinopathies and is valueless in angioneurotic edema and gastrointestinal disorders. Since oral administration often gives rise to unpleasant symptoms, attempts were made to administer the drug by iontophoresis. The procedures followed in two groups of ten patients, the first with skin diseases and the second with rhinopathies, are described. Symptomatic but shortlived improvement was obtained in 90 per cent of cases treated in this manner. AUTHOR'S ABSTRACT.

Protective Action of Combinations of Diphenhydramine and Aminophylline in Fatal Bronchospasm in Guinea Pigs Due to Mecholyl Aerosol. Hambourger, W. E., Freese, H. B., Winbury, M. M., and Michiels, P. M.: J. Pharmacol. & Exper. Therap. **94**: 367, 1948.

Guinea pigs were subjected to an aerosol mist of mecholyl which ordinarily causes almost 100 per cent fatality. Both Benadryl and Aminophylline were found to protect the guinea pigs against mecholyl-induced bronchospasm, 1 Gm. of Benadryl being equivalent to 3.22 Gm. of Aminophylline. The acute intraperitoneal toxicity for these two drugs was studied with respect to their E.D. 50 and L.D. 50. One gram of Benadryl was found to be as toxic as 2.17 Gm. of Aminophylline. The two drugs used in various combinations did not exhibit more than a simple additive effect either with respect to protection of the animals or to toxicity. K.

Failure of Antihistaminic Drugs to Reduce Reactive Hyperemia in Man. Landowne, M., and Thompson, W. S., Jr.: Proc. Soc. Exper. Biol. & Med. **69**: 537, 1948.

Reactive hyperemia was produced in the leg in six subjects by release of arterial occlusion maintained for varying periods of time. A venous occlusion plethysmograph was used to measure the blood flow. The initial inflow rate immediately following release of arterial occlusion was considered representative of the degree of vasodilatation resulting from the occlusion. There were no significant differences in blood flows before and after the administration of antihistaminic drugs, although the drugs were present in concentrations sufficient to reduce significantly the size of histamine wheals.

The failure of antihistaminic drugs to reduce the vasodilatation of reactive hyperemia is regarded as evidence against the concept that the mechanism of this phenomenon is based on a release of histamine or of "H substance."

B. SIEGEL.

The Source of the Histaminolytic Enzyme in the Blood of Pregnant Women. Swanberg, H.: Acta physiol. Scandinav. **16**: 83, 1948.

The histaminolytic action of maternal blood is more than 100 times that of a full-term child. The histaminolytic action of blood from the umbilical cord approximates or is slightly higher than that found in the male or the nonpregnant female. The histaminolytic action of amniotic fluid is comparatively strong and follows the maternal blood curves reported by Ahlmark. It increases rapidly during the first half of pregnancy and then remains at approximately the same level until parturition. The histaminolytic action of the placenta is the strongest of all organs studied. It increases rapidly during the first half of pregnancy. The decidual portion of the placenta has much stronger activity than the fetal portion. Observations suggest that the histaminolytic enzyme is formed mainly in the decidua. A rapid decrease of histaminolytic action does not occur until parturition. H.

The Intravenous Use of Procaine Hydrochloride. Barbour, C. M., and Jowell, R. M.: Anesthesiology **9**: 514, 1948.

The intravenous use of procaine hydrochloride in a 0.1 per cent solution (1 Gm. in 1,000 c.c. per hour) in various conditions is discussed. Procaine effectively combats cardiac arrythmias and has been used to advantage in intrathoracic surgery, in operative procedures on debilitated patients, and in young patients with severe cardiac disease. In pruritus associated with jaundice, contact dermatitis, and exfoliative dermatitis, procaine is best administered in the evening because of the sedative effect. The primary action of procaine is sympathomimetic. H.

Treatment of Dysmenorrhea With Synthetic Antihistaminics. Ameline, A.: Presse méd. **68**: 821, 1948.

Good results were obtained following the administration of antihistaminic drugs (R. P. 2339 and Neoantergan) to patients with severe dysmenorrhea for which no organic cause could be found. C.

Miscellaneous

The Effect of Roentgen Irradiation on Antibody Formation in Rabbits. Craddock, C. G., and Lawrence, J. S.: J. Immunol. **60**: 241, 1948.

About eight hours after they were exposed to 250 r whole body irradiation, rabbits were given injections of typhoid vaccine subcutaneously and washed sheep red cells intravenously. Nonirradiated controls were treated similarly. Within four to six hours after irradiation, the lymphocyte count fell rapidly, remained depressed for about thirty days, and returned to the preirradiation level by the fortieth day. During this time, the polymorphonuclear counts were only slightly affected while the red cell counts remained the same. The typhoid agglutination and sheep red cell hemolysin titers were much higher in the control animals than in the irradiated group. The de-

pressant effect of x-ray on the antibody producing ability of the animals was only temporary. A booster injection of typhoid vaccine given forty days after irradiation produced antibody titers to levels well above the maximum reached after the first course of immunization. A nonspecific "anamnestic response" in the antibody titer could not be produced with either small or large doses of x-ray.

Another group of rabbits was exposed to 250 total body r three days following immunization. Although a depression of lymphocytes and polymorphonuclear leucocytes resulted, antibody titers developed at the same rate as in immunized control rabbits. It is concluded that the depressant effect of x-ray on antibody production is not due entirely to the depression of lymphoid tissue. Reserve sources of tissue which are more resistant to x-ray than lymphoid tissue must have been capable of carrying on antibody production at a normal rate once it had begun, even though the major portion of lymphoid tissue had been temporarily damaged. R. WISEMAN.

Inhibition of the Shwartzman Phenomenon by Local Application of Bromobenzene and Other Solvents. Thomas, L., and Stetson, C.: Proc. Soc. Exper. Biol. & Med. **69**: 409, 1948.

By painting the skin with bromobenzene at the time of the intracutaneous injection with bacterial toxin or at various intervals thereafter up until the time of the intravenous injection, the Shwartzman phenomenon was inhibited. Maximal inhibition occurred when bromobenzene was applied sixteen to twenty hours after the intracutaneous injection. If the skin site was painted before the intracutaneous injection or shortly following the intravenous inoculation, no inhibition resulted. Other organic solvents including chlorobenzene, iodobenzene, benzene, chloroform, and methyl salicylate were found to have some inhibiting properties. Ether, acetone, or alcohol had none. A primary skin irritant without solvent action such as 10 per cent formalin was also found to be ineffective.

The use of Evans blue dye revealed that there was an increased capillary permeability in normal rabbit skin following the application of bromobenzene. The dye technique showed no increase in capillary permeability at the skin site prepared for intravenous injection. Following the application of bromobenzene to the prepared site there was a marked diminution in the amount of dye seen in the sensitized area. The significance of these observations was discussed. R. WISEMAN.

Isolation of the Heterogenetic "Mononucleosis Antigen" From the Stroma of Beef Erythrocytes. Schwarzweiss, H., and Tomesik, J.: Proc. Soc. Exper. Biol. & Med. **69**: 558, 1948.

Extractions of the stroma of beef erythrocytes were made with cold and with boiling organic solvents. The extract obtained with boiling 80 per cent alcohol showed the highest activity of the so-called heterogenetic "mononucleosis antigen." This extract inhibited the sheep cell agglutination of an infectious mononucleosis serum in a dilution of 1:2,400,000. This antigen was found to be thermostable and could not be digested by pepsin or trypsin. Potent antigen was obtained from all beef erythrocytes, but the antigen obtained from the stroma of sheep erythrocytes was weak. Small quantities of a similar heterogenetic antigen was found in various rabbit organs, but not in rabbit erythrocytes. This may be the reason for the inability of the rabbit to produce the corresponding heterogenetic antibody. B. SIEGEL.

Rh Factor in Immunological Reactions. Weiner, A. S.: Ann. Allergy **6**: 293, 1948.

The Rh antibody titer was measured periodically during pregnancy in seven Rh-negative women who had previously had erythroblastotic babies and who delivered normal Rh-negative babies. At birth, umbilical cord bloods and maternal bloods were taken for comparative titrations. In six cases, the maternal serum failed to clump Rh-positive cells in saline media, but strongly clumped such cells in plasma media, indicating that the sera of these patients contained Rh glutinins with little or no accompanying Rh agglutinins. In these six cases, the titer of each infant's serum was the same as that of its mother's serum. Hence, there had been free passage of antibodies through the placenta. The serum of one mother contained potent anti-Rh agglutinins, while no agglutinins were demonstrated in the infant's serum. It is concluded that the placenta acts like a semipermeable membrane holding back bivalent agglutinins but permitting univalent glutinins (blocking antibodies) to pass freely. It was found that univalent antibodies persist in the baby's circulation for periods up to four months. E. W.

Studies of the 1943 Epidemic of Influenza A. I. Introduction. The Commission on Acute Respiratory Diseases: Am. J. Hyg. **48**: 253, 1948.

The 1943 epidemic of influenza A was studied at Fort Bragg and Camp Mackall, in North Carolina, with populations of 40,000 and 35,000, respectively. The men were usually hospitalized if they developed a temperature of 100.0° or more Fahrenheit. At Fort Bragg, the outbreak of influenza A in late November involved both seasoned men and recruits. In December and January, a second epidemic of an undifferentiated, noninfluenzal acute respiratory disease involved the recruits, of whom there were about 11,000 in camp, but spared the seasoned men. The influenza A epidemic at Camp Mackall, a crowded camp, was more explosive in character and of shorter duration than that at Fort Bragg, an uncrowded camp. At the latter site, there were several separate outbreaks which involved different units and were related to the arrival of new recruits. In a sample of 588 men at Fort Bragg, 38 per cent showed antibodies to influenza A. Of these only one-fourth had been seen at the hospital or dispensary because of febrile illness. Hence, in this group the incidence of inapparent infection was three times that of clinical infection.

Virus was detected in throat washings very early in the disease and sometimes as late as the sixth day after onset of illness. The incidence of atypical pneumonia increased very little during the epidemic, but that of lobar pneumonia increased to a somewhat greater degree. During the epidemics, the bacterial flora of the throat remained unchanged both in influenza victims and in healthy controls. K.

Studies of the 1943 Epidemic of Influenza A. II. Comparison of the Clinical and Laboratory Characteristics of Influenza A and Undifferentiated Acute Respiratory Disease (ARD). Commission on Acute Respiratory Diseases: Am. J. Hyg. **48**: 263, 1948.

At Fort Bragg, an epidemic of influenza A was followed by an epidemic of undifferentiated, noninfluenzal acute respiratory disease (ARD). In a group of 2,000 recruits, sixty men were subjected to weekly throat cultures before, during, and after the epidemics. There was no change in bacterial flora. During the study period there were 342 patients admitted with acute

respiratory disease, of whom 132 had serologic evidence of influenza A, and three of influenza B infection. One hundred and forty-seven had ARD which was diagnosed by the exclusion of streptococcal infection, influenza, exudative pharyngitis, roentgenologic evidence of pneumonia, or other recognizable entities. Twenty-seven had primary atypical pneumonia.

Clinically, it was very difficult to differentiate between influenza and ARD in individual cases. Not more than one-half the cases of influenza had such typical characteristics "as sudden onset, severe malaise, painful eyeballs, flushed face and injected eyes, high fever, and leucopenia." Comparison of large numbers of individuals, however, led to the conclusion that in influenza there are more constitutional symptoms at the onset, greater frequency of symptoms, more physical signs involving the nasal mucosa, and higher maximum temperatures. In ARD, sore throat and hoarseness are more prominent symptoms. K.

Studies of the 1943 Epidemic of Influenza A. III. The Reliability of Immunological Methods for the Diagnosis of Influenza. Commission on Acute Respiratory Diseases: Am. J. Hyg. **48**: 276, 1948.

Ten sets of sera from influenzal patients, consisting of at least six specimens per set, were subjected to four methods of antibody titration. Essentially similar results were obtained with agglutination inhibition, mouse protection, and complement fixation tests. In contrast, egg neutralization tests were less sensitive. The results of 169 sets of agglutination inhibition tests were reproducible to within a two-fold dilution in most instances. A twofold increase in titer was found to occur in only 1.24 per cent of 969 pairs of sera taken during a period when influenza A was not detected at Fort Bragg. The influenza virus was isolated from the throat washings of four of nine patients whose sera showed a twofold but not a fourfold increase in titer. Thus, a twofold increase in titer usually indicated infection with influenza A virus. Absolute antibody titers of a single specimen of serum examined on 130 different days varied widely on different days (from 1:180 to 1,456), but there was "a 3 to 1 probability that a repeat test would confirm the original titer within the limits of a 4-fold increment, i.e., 2-fold increment." In nineteen sets of sera, the increase in titer was the same when virus isolated from the epidemic in question was used as compared to standard PR8 virus. In four sets of sera, a greater increase in titer could be detected when homologous virus was used. No consistent difference in absolute titers was obtained in comparing the two viral antigens. K.

Studies of the 1943 Epidemic of Influenza A. IV. The Antibody Response to Infection. The Commission on Acute Respiratory Diseases: Am. J. Hyg. **48**: 287, 1948.

In fourteen cases of influenza, serum specimens were taken at two- or three-day intervals after the onset of illness. The earliest demonstration of antibody formation was six to seven days. By ten days, antibody was demonstrable in the sera of ten of these patients. Maximum titers occurred near the twentieth day and persisted near this level for at least a month. Thereafter, there was a gradual fall in titer. In four sera examined at one year, the titers had not yet fallen to the acute phase level. K.